

Subject: Human Anatomy II

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Total marks: 50

Attempt the following questions. Add diagrams where needed.

Each carries 10 marks.

1. What are the major features of intracranial fossae of the skull?

Answer: intracranial fossae have

2 paired bones frontal and temporal

3 unpaired ethmoid, sphenoid and occipital

Intracranial fossae (superior view)

- Anterior cranial fossa
- Middle cranial fossa
- Posterior cranial fossa

The anterior cranial fossa the frontal bone turns sharply back to the large part of the roof of the orbit.

this part of the bone is therefore called the orbital plate of the frontal bone which is the largest contributor to the anterior fossa. It is convex and ridged in roughly H-Shape in conformity with the orbital surface of the frontal lobe of the cerebral hemisphere.

- The frontal lobe of the brain occupies the anterior cranial fossa.

Anteriorly the groove for the superior sagittal sinus is traceable down as a crest for the falx cerebri, and behind the lower end of the rest is the foramen cecum, which is plugged by fibrous tissue of the falx.

- The posterior boundary of the anterior cranial fossa is made by the lesser wing of the sphenoid.
- Laterally, the lesser wing meets the greater wing and the frontal bone at the pterion.
- Medially, lesser wing of the sphenoid is projected back as the anterior clinoid process.
- In front of the anterior clinoid process, the base of the lesser wing is perforated by the optic canal.

The anterior cranial fossa

- Boundaries
 - Anterolaterally
Frontal sinus
 - Posteriorly
Lesser wing and body of sphenoid
 - Medially
Cribriform plate (horizontal and vertical part).

Crista galli

- Floor
Frontal bone (orbital plates) ethmoid lesser wing and body of sphenoid.
- Relation
Nasal cavity, orbital cavity
- Contents
Frontal lobes of cerebral hemisphere
- Landmarks
Frontal crest=falx cerebri
Ethmoid = crista galli
Sphenoid = lesser wings, anterior clinoid process= tentorium cerebelli

Name	contents
Cribriform	Olfactory nerve fibers
Anterior ethmoid	Ant, Ethmoid vessels and nerves
Posterior ethmoid	Post, Ethmoid vessels and nerves
Foramen cecum	Origin of superior venous sinus

2:write note on the cranial nerves.

Answer: cranial nerves are the nerves that emerge directly from the brain which are conventionally considered twelve pairs. Cranial nerves relay information between the brain and part of the body. Primarily to and for regions of the head and neck, including the special senses of vision, taste, smell, and hearing. The cranial nerves emerge from the central nervous system above the level of the first vertebrae of the vertebral column. Each cranial nerve is paired and is present on both sides. The number of the cranial nerves is based on the order in which they emerge from the brain and brainstem, from front to back. The terminal nerves, olfactory nerves and optic nerves emerge from the cerebrum, and the remaining ten pairs arise from the brainstem, which is the lower part of the brain. The cranial nerves are considered components of the peripheral nervous system (PNS), although on a structural level the olfactory, optic, and trigeminal (V) nerves are more accurately considered part of the central nervous system (CNS). The cranial nerves are in contrast to spinal nerves, which emerge from segments of the spinal cord. Most typically, humans are considered to have twelve pairs. Which are as follows

1: olfactory nerve (it is a sensory nerve relating to the sense of smell)

2: optic nerve (it is a sensory nerve relating to sight)

3: oculomotor nerve (it is motor nerve relating to eye movement , pupil constriction)

4: trochlear nerve (it is motor nerve relating to the eye movement)

5: trigeminal nerve (it is mixed nerve relating to the mastication, facial sensation)

6: abducens nerve(it is motor nerve relating to the eye movement)

7: facial nerve(it is mixed nerve relating to the facial movement anterior 2\3 taste)

8: vestibulocochlear nerve (it is sensory nerve relating to the hearing)

9: glossopharyngeal nerve (it is mixed nerve relating to the posterior 1\3 taste swallowing)

10: vagus nerve (it is mixed nerve relating to the taste swallowing plate elevation)

11: accessory nerve (it is motor nerve relating to the head turning, shoulder shrugging)

12: hypoglossal nerve (it is motor nerve relating to the tongue movement)

2. Write note on the salient features of norma frontalis and norma occipitalis of skull.

Answer:

Norma occipitalis of skull:

- Most of the occipital bone can be seen. the lambda is where the lambdoid and sagittal sutures intersect.
- The posterior pole of the skull which is the part that will hit the ground first when falling backwards is located below the lambda.

Posterior fontanelle :

- In the newborn skull, sagittal and lambdoid sutures do not quite meet and there is a triangular posterior fontanelle.
- This is much smaller than the anterior fontanelle and it closes earlier before the end of the first year.

External occipital protuberance

- a projection located below the lambda can be felt by running a finger up to the midline groove at the back of the neck.

Nuchal lines

- Stretching laterally from the external occipital protuberance are the superior nuchal lines and, below them the inferior nuchal lines.

Inferior nuchal lines

- The surface landmark for the attachment of the tentorium cerebelli . which straddles the transverse venous sinus.

- Superior nuchal lines

- The inion

- Mastoid emissary foramen

salient features of norma

- The anterior view of the skull

- Presents an irregular surface with 3 excavations.
- 1: one nasal cavity
- 2: two orbital cavities

Six regions of norma frontalis

- Frontal region
- Orbital region
- Nasal region
- Zygomatic region
- Maxillary region
- Mandibular region

Boundaries:

- Superior
Top of the skull
- Inferior
Orbits and root of the nose
Frontal process of the maxillae
- Laterally
Frontal process of the zygomatic bone

Characteristics features

- Frontal tuberosity or eminence
- Superciliary arch
- Glabella
- Nasion
- Supraorbital margin
- Supraorbital notch

Bones involved

- Maxilla
- Zygomatic bone
- Sphenoid bone
- Frontal bone
- Palatine bone
- Ethmoid bone

- Lacrimal bone

3. What do you know about the muscles of hip and knee.

Answer

In human anatomy the muscles of the hip joint are those muscles that cause movement in the hip, most modern anatomists define 17 of these muscles, although some additional muscles may sometimes be considered these are often divided into four groups according to their orientation around the hip joint the

1: gluteal group

- The gluteus maximus extends the hip, while the gluteus medius and minimus are involved in hip rotation and abduction (moving hip out from the midline).

2: lateral rotator

- the lateral rotator group of muscles (externus and internus obturators, the piriformis, the superior and inferior gemelli, and the quadratus femoris) turns the anterior surface of the femur outward. This motion is aided by the gluteus maximus and the adductor magnus.

3: adductor group

- the adductor group (adductor brevis, longus, and magnus along with pectineus and gracilis) moves the femur towards the midline from an abducted position.

4: iliopsoas group

- the iliopsoas group of muscles (iliacus and psoas major) is responsible for hip flexion.

Knee joint muscle

Three sets of muscles (popliteus, quadriceps and hamstrings) allow for movement, balance, and stability at the knee joint.

- At full extension, the tibia and femur “lock” into position, providing stability in the leg and improving load-bearing capacity. The popliteus muscle at the back of the leg unlocks the knee by rotating the femur on the tibia, allowing flexion of the joint.
- The quadriceps femoris muscle group (rectus femoris, vastus lateralis, vastus medius, and vastus intermedius) crosses the knee via the patella and acts to extend the leg.
- The hamstring group muscles (semitendinosus, semimembranosus, and biceps femoris) flex the knee and extend the hip.

Key points

- Hamstring groups: a group of three muscles found in the posterior region of the thigh, responsible for flexing of the lower leg at the knee.
 - Quadriceps femoris: a group of four muscles found in the anterior region of the thigh, responsible for extension of the lower leg at the knee.
 - Popliteus : A muscles located behind the knee which “ unlocks” the fully extended knee joint allowing for flexion.
4. Write a comprehensive note on the femoral triangle.

Answer:

The femoral triangle is the hollow area in the anterior thigh . Many large neurovascular structure pass through this area, and can be accessed relatively easily thus it is an area of bothe anatomical and clinical important. In this article we shall look at the border content and clinical correlation of the femoral tringle.